



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

SEP 22 2010

MEMORANDUM

SUBJECT: Final Decision and Response to Comments on Proposed Groundwater Corrective Action Remedy for the Harcros Chemicals Site, Davenport, Iowa
EPA ID#: IAD022100671

FROM: Ruby Crysler *RC*
RCRA Corrective Action and Permits Branch
Air and Waste Management Division

THRU: John Smith, Acting Chief *JS*
RCRA Corrective Action and Permits Branch
Air and Waste Management Division

TO: Becky Weber, Director
Air and Waste Management Division

Attached for your signature is the Final Decision and Response to Comments for the proposed groundwater corrective action remedies for the Harcros Chemicals Site in Davenport, Iowa. During the public comment period only one comment was received. The Iowa Department of Natural Resources supported EPA's proposed remedies. Therefore, the remedies have not been altered from those originally proposed.

The corrective action remedy for on-site groundwater is In-Situ Chemical Oxidation (ISCO). Additional ISCO injection wells were installed in close proximity to the most contaminated wells at the site in the northern and southern portions of the site. Sodium permanganate is being injected into groundwater in these areas to increase the rate of contaminant degradation. Additional oxidant injections will be performed in the future to ensure continued degradation of contaminants. The corrective action remedy for off-site groundwater is monitored natural attenuation (MNA) with Enhanced In Situ Bioremediation (EISB) as a contingency. Implementation of EISB includes the addition of a substrate or amendment to select areas of the off-site shallow bedrock groundwater to enhance the biological components of natural attenuation processes. This will result in further reduction in the mass of constituents in the off-site groundwater plume, resulting in higher rates of attenuation in off-site groundwater.



Groundwater will continue to be sampled in on-site monitoring wells semi-annually in conjunction with continued permanganate injections and associated performance monitoring. EPA may adjust the frequency of monitoring in the future based on plume response. In addition, select off-site monitoring wells will be monitored regularly to collect data about contaminant concentrations in the off-site groundwater plume. The groundwater plume will be monitored closely in accordance with strict performance standards to confirm the contaminant plume is diminishing within a reasonable time frame and will not flow beyond its current extent.

EISB will be utilized to further reduce contaminant concentrations in the off-site groundwater plume if performance standards are not being met by the MNA remedy. Institutional controls will be implemented to limit the site to industrial use only, and an environmental covenant on the property will be utilized to prevent groundwater use and exposure.

The RCAP Branch and Region 7 Regional Counsel recommend your approval of the Final Decision Document. Your signature is requested below. If you have any questions, please contact me at ext. 7409.

John Smart for BW
Approved

9/21/10
Date

Disapproved

Date

Attachment

**FINAL DECISION AND RESPONSE TO COMMENTS
HARCROS CHEMICALS
DAVENPORT, IOWA**

INTRODUCTION

This Final Decision and Response to Comments (FD/RTC) is being presented by the U.S. Environmental Protection Agency (EPA). The purpose of the FD/RTC is to present issues and concerns raised during the public comment period on the remedy proposed for the Harcros Chemicals site, to provide responses to those issues and concerns, and to identify the remedy EPA has selected for the site. EPA received one comment during the public comment period; however, the proposed remedy has not been altered from the one originally proposed.

SELECTED REMEDY

The corrective action remedy for on-site groundwater is In-Situ Chemical Oxidation (ISCO). Additional ISCO injection wells were installed in close proximity to the most contaminated wells at the site in the northern and southern portions of the site. Sodium permanganate is being injected into groundwater in these areas to increase the rate of contaminant degradation. Additional oxidant injections will be performed in the future to ensure continued degradation of contaminants. The corrective action remedy for off-site groundwater is monitored natural attenuation (MNA) with Enhanced In Situ Bioremediation (EISB) as a contingency. Implementation of EISB includes the addition of a substrate or amendment to select areas of the off-site shallow bedrock groundwater to enhance the biological components of natural attenuation processes. This will result in further reduction in the mass of constituents in the off-site groundwater plume, resulting in higher rates of attenuation in off-site groundwater.

Groundwater will continue to be sampled in on-site monitoring wells semi-annually in conjunction with continued permanganate injections and associated performance monitoring. EPA may adjust the frequency of monitoring in the future based on plume response. In addition, select off-site monitoring wells will be monitored regularly to collect data about contaminant concentrations in the off-site groundwater plume. The groundwater plume will be monitored closely in accordance with strict performance standards to confirm the contaminant plume is diminishing within a reasonable time frame and will not flow beyond its current extent. EISB will be utilized to further reduce contaminant concentrations in the off-site groundwater plume if performance standards are not being met by the MNA remedy. Institutional controls will be implemented to limit the site to industrial use only, and an environmental covenant on the property will be utilized to prevent groundwater use and exposure.

Institutional Controls:

Since groundwater at the facility still contains contaminants at concentrations exceeding clean-up levels, institutional controls will be used to prevent unacceptable exposure of site employees to hazardous substances remaining at the site and to prohibit installation of on-site drinking water or other wells. The primary institutional controls for the remedy include:

- Limiting the site to industrial use only;
- Implementing site-specific health and safety protocols for site workers to limit potential contact with contaminated media;
- Prior notification to the site's senior project manager and approval for activities that may expose site or construction/utility works to contaminated groundwater (i.e., excavation);
- Prohibiting the installation of potable, industrial, or irrigation water wells;
- Providing access to EPA or State of Iowa representatives for sampling and inspection of the injection and groundwater monitoring wells;
- Conducting annual inspections that will include visual inspection of the site and review of pertinent records relating to the site. Annual inspections will verify that these institutional controls are being properly maintained. Access will be provided to EPA or State of Iowa representatives for verifying land use.
- Providing notice to prospective purchasers and occupants that there are contaminants in the groundwater; and
- Off-site exposure to contaminated groundwater will be prevented by providing notification to owners/operators of affected neighboring properties of plume presence and toxicity.

Each of the foregoing proposed remedies and several alternatives were initially evaluated against the following general standards for corrective measures and selection decision factors.

General Standards for Corrective Measures (required elements)

- Overall Protection of Human Health and the Environment- how the alternatives provide human health and environmental protection.
- Attain Media Clean-up Standards- the ability of alternatives to achieve the media clean-up standards.
- Control of the Sources of Releases- how alternatives reduce or eliminate to the maximum extent possible further releases.
- Compliance with Standards for Management of Waste- how the alternatives assure that management of wastes during corrective measures is conducted in a protective manner.

Selection Decision Factors (used to select among the alternatives)

- Long-Term Reliability and Effectiveness- magnitude of residual risk, adequacy and reliability of controls.
- Reduction of Toxicity, Mobility, and Volume of Waste- treatment processes and materials treated; amount of hazardous materials destroyed or treated; degree of expected reductions in toxicity, mobility, or volume.
- Short-Term Effectiveness- protection of community during remedial actions, protection of workers during remedial actions, environmental impacts, and time until Corrective Action Objectives are achieved.
- Implement ability- ability to construct and operate the technology, reliability of the technology, and ability to monitor effectiveness of the remedy.
- Cost- capital costs, operating and maintenance costs, and present worth costs.

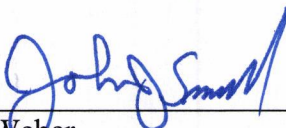
Based upon a comparison to the foregoing general standards and selection decision factors, EPA determined that the proposed remedies for the site represented the best balance of effectiveness, implement ability, cost and environmental protectiveness. Therefore, sodium permanganate injection, MNA with Institutional Controls, and enhanced bioremediation were selected as the final remedy.

PUBLIC PARTICIPATION ACTIVITIES

A public comment period was held from August 16, 2010 to September 15, 2010. Only one comment was received during the public comment period. The Iowa Department of Natural Resources supported EPA's selection of the groundwater corrective action remedy. Therefore, no modifications or changes to the proposed remedies were made as a result of public comment.

DECLARATIONS

Based on the administrative record compiled for these corrective actions, I have determined that the selected remedies to be ordered at this site are appropriate and will be protective of human health and the environment.


for Becky Weber
Director
Air and Waste Management Division

9/21/10
Date